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ANNUAL REPORT

OF THE

Department of Agriculture

For the Year 1942

FREETOWN:
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Annual Report—Agricultural Department, 1942.

Sir,

I have the honour to submit my report for the year 1942.

Section I—General Review of Crops Including Exports.

2. The policy of the Department of Agriculture was modified in some respects to deal with war emergencies and this war-time modification of the policy of the Agricultural Department laid down by His Excellency was:—

> "To concentrate on the production of essential foodstuffs and in particular to give attention to rice, vegetables (including European vegetables, yams, etc.) and, in suitable areas, pigs. In addition to the crops specifically mentioned, Agricultural Officers will of course give every possible assistance in regard to the increased output of other food crops which are of less importance."

In connection with this policy the Secretary for Protectorate Affairs arranged to give the fullest possible propaganda in support of food production to be carried out through District Commissioners and Chiefs.

3. While the above policy was that to be adopted for home-grown food supplies, the policy to be adopted with regard to stimulating the export of various crops was, of course, dependent on the demands for those crops in the various markets of the Allies and the shipping space available to ship them; and this varies from time to time.

4. It will be seen that research work had for the moment to be relegated to the back ground and, in fact, all research work has ceased except for the continuation and increase of promising strains of rice on the rice farm at Rokupr. Owing to the lack of Agricultural Officers, the Plant Pathologist and the Entomologist were both employed on agricultural work and while these officers have done such work as they could from time to time on their own special lines of research with the limited facilities at their disposal, it must be realised that very little real research work could be done.

5. As always, the most important food crop in Sierra Leone was rice and the most important factor limiting production during 1942 was the large demand made by the Services for recruitment of troops and for labour for the building of various camps, wharves, airfields, etc. necessary for the prosecution of the war in Sierra Leone. The average number of Africans in paid employment before the war was about 20,000 of whom 16,000 were natives of the Protectorate. By 1942 the number of Africans in employment had risen to 80,000 of whom some 73,000 were Protectorate natives. While these figures show theoretically the number of men employed, the number of Protectorate natives, making allowances for sickness, absenteeism, etc. engaged in non-farming work must have been at least 85,000 and this is confirmed by the fact that the number of men registered in the Colony had risen to 107,000 by the end of the year. Since the number of

The Honourable,
The Colonial Secretary,
Freetown.

farmers before the war was estimated to be about 383,000, it will be seen that there has been a total of some 20 per cent. to 25 per cent. of the male population, in the most vigorous years of their life, removed from production; and not only have they been withdrawn from production but they have established a market for the consumption of local foodstuffs which was non-existent before the war.

6. We suffered from one further handicap in 1942 and that was a bad rainy season. In my last year's report I said that one of our greatest assets in 1941 was a good rainy season, during 1942 we did not have that good fortune and the crop as a result is at least 15 per cent. below the 1941 figure. Even this figure was only reached by the greatest efforts by Administrative and Agricultural Officers; and when it was seen that the weather was not suitable for rice, efforts were made at once to increase other foodstuffs such as cassava, sweet potatoes, yams, etc., and these were increased to such an extent that when rice ran short in July to October, 1943, we were able to supply the Freetown market with cassava, farina, foofoo, which, although not so acceptable as rice, forms an alternative supply of starchy foodstuffs.

7. In spite, however, of adverse weather conditions and the reduction of labourers, by the vigorous propaganda of Administrative Officers on the uplands and by Agricultural Officers, especially in the swamps; and by extending the normal season of farming by another month, the rice crop was brought very nearly up to an average mark, that is about 175,000 tons. The collection of sufficient rice for non-producers however proved a difficulty. Paid labourers in Freetown remitted money to their relations in the Protectorate, and the farmer no longer needed to sell his rice to pay house-tax. Moreover, the price of rice was fixed at a low level compared with the high prices of merchandise and the farmer preferred to retain his rice rather than sell it at the control price. Special measures therefore had to be taken at the end of 1942 for the purchase of the crop.

8. The marked spread of swamp cultivation could only be effected by the distribution of different types of seed rice suitable for the various kinds of swamps and during the year some 12,774 bushels of seed rice were distributed. The greater part of these (8,174 bushels) were distributed from the departmental scheme, but Native Administrations took up the revolving scheme with great enthusiasm and distributed 4,600 bushels.

9. While the increase of rice production since the war broke out may not be spectacular, it is at least remarkable in the fact that each individual farmer has produced on an average about 30 per cent more rice than he did before the war, since production has been maintained with a much reduced number of farmers. The amounts of rice coming forward on the railway, the only place where accurate statistics are available, show that the amount carried during 1942 was many times that in pre-war years.

10. Further efforts were made to increase the production of rice by the Irrigation and Drainage Branch of the Agricutural Department which commenced the reclamation of some 2,000 acres of swamp land in the Scarcies area; these areas should be ready for planting next season. In addition, Native Administrations in the Bo District had a scheme in hand by the end of the year for the clearing and planting of over 1,000 acres of swamp farm

which will be planted next season, while the Kenema Division had devised a scheme for planting up some 6,000 to 7,000 acres of small swamps during 1943. Towards the end of the year all over Sierra Leone arrangements were being made for the increase of swamp farms but precise details with regard to acreages are not available.

11. *Food Crops other than Rice.*—As will be seen in a later section of this report the distribution of other food crops have received much attention, these include yams, sweet varieties of cassava, beans, sweet potatoes, coco yams, maize and vegetables. Agricultural stations and sub-stations both participated in the wide distribution of planting material of these crops as well as the distribution of young fruit trees and local vegetables. Native Administrations have commenced to take a more active part in this work, and several Chiefdoms in the Kenema and Makeni Divisions are now running their own seed farms and nursery gardens. The increase in the garden crops was exceedingly great and some comparison may be seen by comparing it with pre-war railment figures. The average railments of these crops to Freetown before the war was 3,318 tons while in 1942, 7,726 tons of fruit were carried, an increase over pre-war production of 4,400 tons or 133 per cent, by districts served by the railway route. From other figures it is estimated that including Bullom Shore the total extra production was some 9,000 tons.

This production and collection of foodstuffs was all the more remarkable during a period when the lack of transport was acute. More especially was this so in the river areas. Very few motor launches exist and practically no farmer owns a boat capable of carrying more than 5 tons; "salas" rarely carry more than 2 tons and canoes a few cwts: but from every creek and river, by canoe, sala and sailing boat a continued procession of tiny water craft moving down to Freetown brought produce for the support of the war effort.

12. While the policy of the Department was temporarily modified by His Excellency and restricted by exigencies due to the war mainly to the immediate increase in food production, the long term policy of Government with regard to agriculture has remained the same, and, as is customary, it is repeated in this Annual Report together with any new work or notable extensions of previous work which in spite of the war emergencies it was possible to commence in 1942; but naturally the new work was not very great in 1942. The policy of the Government and work initiated or extended by the Department is as follows:—

A.—The Adequate Provision of food for the People.

This is to be accomplished by:—

I. The improvement and spread of Swamp Rice cultivation to such an extent that not only will the needs of the people be supplied in a bad year but there will be a surplus for export in ordinary years.

Work extended in 1942:—

(i) *Swamp Clearance.*—Sembehun Loan Scheme. During the fourth year of this scheme £2,000 was allotted in place of the £500 in previous years but owing to lack of staff and labour for clearing it was found impossible to spend all this amount and only £1,700 was advanced in the form of loans.

(ii) *Seed Distribution.*—Many Native Administrations established their own revolving schemes and in the aggregate the amount distributed is very large. A total of 12,774 bushels of seed rice were distributed by the Department and 4,600 bushels of these were distributed from Native Administrations schemes.

(iii) *Irrigation and Drainage Scheme.*—During 1942 the scheme for the development of 50,000 acres of tidal and inland swamp was drawn up and submitted to the Secretary of State for the Colonies. In addition, the schemes drawn up in the previous year for Luti (1,050 acres) and Rosino (690 acres) were partially completed. Surveys and other work continued.

II. The better Cultivation of Inland Swamps and Valleys for Rice during the Wet-Season and Crops other than Rice during the Dry-Season.

No new work was started but there was a general expansion of work from existing stations, especially at Makeni.

III. The Extension of Garden and Small-field Crops to serve as an Auxiliary Food Supply.

Increased propaganda was carried out to increase production of vegetables and root crops.

IV. The Selection (or Introducton) and Distribution of Seeds and Plants suitable for I, II, and III.

Considerable quantities of vegetable seeds were imported.

V. Improvement of Poultry and Stock.

In consultation with Dr. G. N. Hall a scheme was drawn up for the establishment of a Veterinary Department. This scheme envisaged a joint Department for the Gambia and Sierra Leone. The costs over five years were worked out and the Colonial Development and Welfare Fund asked for assistance.

In addition, pigs were imported from Gold Coast and Nigeria for breeding purpose.

B. The Cultivation of Money Crops or Exploitation of Wild Trees for Export Purposes.

No new work commenced.

C. The Arresting of the Degradation of the Forest Growth of Sierra Leone or at any rate increasing the Regeneration Period Between Successive Brushings of the Same Area.

No new work commenced.

D. Improvement in the Preparation and Marketing of Produce.

Four planters mills ordered in 1941 were received in 1942 and some of these were installed by the end of the year.

E. Preservation of the Standard of Export Produce by Inspection.

No new work.

F. Co-operation with Education Department where possible in the Teaching of Agriculture.

The agricultural side of the scheme at Njala was continued and enlarged to take in Forest students. No new apprentices could be recruited at the end of 1942 owing to poor prospects in the Agricultural Department compared with other departments.

G. Research.

No new work, except for the commencement of study of fruit piercing moth on citrus trees at the end of the year by an Entomologist paid from the Colonial Development and Wefare Fund. Both the Plant Pathologist and Entomologist were engaged on full-time work of other kind.

H. Conservation of Soil and Inland Work.

No new work.

I. Nutrition.

No new work.

J. Extension Work.—All Extension Work and Propaganda must be based on Information gained from Experiment, or Experience by Agricultural Officers in Sierra Leone.

No new work, but work on existing stations was greatly extended.

EXPORT CROPS.

13. The price of palm kernels and palm oil remained controlled under the British Government's buying scheme. Export of other crops was hampered by lack of shipping but even so there was a curious rise in the exports of piassava compared with the previous year, and the price of Sherbro piassava rose to £35 a ton naked *ex* scale Sherbro. The ginger crop was bought by the Ministry of Food for the first time and the producer was paid three times as much for his ginger as in the previous year before this marketing arrangement was made. There were also increases in the amount of kola and cocoa exports compared with 1941.

SECTION II—WORK OF THE AGRICULTURAL DEPARTMENT—ORGANIZATION AND STAFF.

14. The Director of Agriculture continued to exercise the powers of Competent Authority for food and merchandise control until 21st September after which date these duties were assumed by the Director of Supplies. The Headquarters of the Department were transferred to Njala on 19th October but an office is maintained in Freetown for the use of the Director during the time when it is necessary for him to be in Freetown, for the Irrigation and Drainage Branch and for the Produce Branch. Owing to the stress of war only very inferior and unsatisfactory accommodation could be obtained and it is hoped that better accommodation will be made available at an early date. While the establishment of the Field Branch of the Department stood at two Senior Agricultural Officers and thirteen Agricultural Officers the full benefit of these was not felt, since one Senior Agricultural Officer acted as Assistant Director and there were two vacancies unfilled throughout the year, while a third vacancy was created

by the resignation of the Agricultural Officer attached to Njala Training College. The African establishment of the Field Branch stood at twenty-six Instructors in the Second Grade and thirty-five in the lower grades. A new post of Junior Agricultural Assistant was created and a Senior Agricultural Instructor of the Department was promoted. The creation of the grade of Junior Agricultural Assistant was much appreciated by the staff whose apparent prospects for promotion are still extremely limited. The staff of the Irrigation and Drainage Branch was considerably augmented. A report by the Irrigation and Drainage Engineer forms an Appendix to this report.

15. *Food Production.*—The production of the maximum amount of food for the needs of the population including the members of the fighting services and the workers engaged on essential works, was the one aim of all branches of the Department. While rice, very naturally since it is the staple food, takes the greatest amount of attention, other food crops were also encouraged but the major emphasis was laid on rice. From every station Agricultural Officers and Agricultural Instructors were searching for suitable swamps, persuading Chiefs to clear them and providing seed suitable for that particular kind of swamp; but for their efforts in this arduous and unhealthy task the production of rice would have been very much curtailed. As it was, the distribution of some 13,000 bushels of seed rice of all types by railway, motor lorry, launch and canoe, and very often headloaded over bush paths to some considerable distance, was in the aggregate a very heavy task for the Department, but one of which it can be justly proud.

16. In view of the heavy demands for vegetables of all type the propaganda for rice production was accompanied by propaganda for vegetable production and here again there was a considerable increase in production and it is not without significance that during the last year, at a time when nearly twenty-five per cent. of the able-bodied men were removed from the Protectorate for employment in war services, the remainder by their joint efforts and by incorporating swamp cultivation into their normal methods of farming, produced as much rice and more vegetables and root crops than before the war. But while satisfactory quantities of African vegetables were forthcoming the production of European vegetables was unsatisfactory and this is due to the fact that a great deal of care and skill is required in order to grow European vegetables under wet tropical conditions. Accordingly a scheme was drawn up for the production of European vegetables using Army personnel who were to be seconded for the purpose of supervision.

17. *Cattle.*—It is estimated that over 6,000 head of cattle are required by men engaged either in the services or in the works connected with them and as there was no organisation in existence capable of dealing with the increase in consumption it was necessary to make the arrangements for the collection of cattle. Towards the end of the year a scheme was drawn up which was to be supervised by officers of the Army for the purchasing of cattle and their delivery into the Freetown area. The Department, while not actively participating in the scheme, gave advice with regard to the routes to be followed and the siting of warris where cattle might rest.

18. *Fish.*—Over 800 tons dried fish were supplied to the army and essential workers and 70 tons of fresh fish to the merchant ships. There was a shortage of fresh fish to the services and civil population. Accordingly, after discussion with the Navy, fishing equipment was obtained from the United Kingdom and a Fisheries Officer seconded from the Navy to stimulate production. No suitable fishing vessel had been made available by the end of the year and when the Director of Supplies took over the distribution of food from the Director of Agriculture the Fisheries Officer was attached to his Department.

19. *Salt.*—There was a serious shortage of salt early in the year and to stimulate production propaganda was initiated and a price guaranteed; cash bowls and corrugated iron sheets were made available for panning operations. It is estimated that 700 tons of local salt were produced of which 200 tons were bought by Government to implement its guarantee of the price. Arrangements were in progress towards the end of the year for extracting salt on a large scale by sea water with the assistance of an expert whom the Army promised to release.

Njala Agricultural Station.

20. Investigational work had again to be reduced. Oil-palm and citrus investigations were on the same lines as during past years and towards the end of the year an Entomologist (Mrs. F. J. Jordan) was appointed to investigate problems arising from fruit piercing moths. Coffee, kola, cinnamon and pineapples received some attention.

21. Annual crop trials included a variety trial with imported yams; a variety and manurial trial with ginger; and a manurial trial with rice. In the yam trial the two Nigerian kinds Nos. 32 and 33 gave the highest yields followed by the Jaffna King which was originally imported from Ceylon. A shade and cultivation trial (non-statistical) was carried out with native ginger. While no definite conclusions can be drawn from this experiment it appeared that the native method of brushing and burning for the ginger farm gives better results than brushing and clearing without burning. The rice trial gave no positive results.

22. More than 6,000 fruit and other economic trees and 8,000 ornamental plants were distributed from the nurseries. The supply of ornamentals will be curtailed during the remainder of the war period. The principal fruit trees distributed were budded grapefruit, oranges, lemons and tangerines, grafted mangoes, avocado pear, and pineapples. Large numbers of coffee seedlings, coconuts, oil-palms and kola were also distributed.

23. In the livestock section the health of the cattle was satisfactory and the making of compost received considerable attention. Young breeding sows were kept under free-range conditions in bush which has had under-growth brushed and trees thinned. This was found to be satisfactory during the dry weather but it remains to be seen whether it will suit during the rains as there is some evidence that "fly" may be troublesome. The health of the pigs was not altogether satisfactory the chief trouble being intestinal parasites. A considerable number of deaths resulted from these parasites and it has become increasingly evident that stock must be kept on concrete throughout the feeding period. Trials were conducted with different types of foodstuffs.

24. In the small flock of sheep forty-nine lambs were born during the year while thirty sheep were sold for breeding purposes and thirteen for slaughter. The health of the sheep flock was fair, but some difficulty was experienced in bringing lambs safely through the dry season when the milk yield of ewes is low. Foot rot was troublesome and required constant attention.

25. Poultry losses were again on a considerable scale as a result of the usual troubles which include intestinal parasites and the depredations of bush game and hawks. 386 chicks were hatched of which 300 were brought safely through the early difficult stage. 110 birds were distributed for breeding purposes besides a considerable number of hatching eggs.

26. Extension work carried out from Njala in parts of the Bo and Moyamba Districts was concerned mainly with the Native Administrations rice schemes under which some 1,200 bushels of seed were distributed.

ROKUPR AGRICULTURAL STATION.

27. Experimental work at this station was confined to a cultivation experiment which has been in progress for a number of years and shows that cultivation in swamp land gives an increase in yield over land which has not been cultivated, and that early cultivation in February is more effective than cultivation immediately prior to planting. Multiplication of high yielding varieties and strains occupied the greater part of the experimental blocks.

28. An analysis of the yields obtained at Rokupr has shown the mean yield of the farm blocks to have increased in the past seven years by over 42 per cent. The fertility of the land appears to have improved slightly but the increase is mainly due to the increased proportion of high yielding strains which have displaced the earlier varieties which gave lower yields. The new and higher yielding varieties are being widely distributed and the result of this distribution is undoubtedly raising the yield of the whole of the Scarcies area.

29. *Seed Distribution.*—More than 4,000 bushels of seed rice were distributed to farmers—1,300 bushels more than in the previous year. A large proportion of this seed was of the Kavunginpoothala variety which has become exceedingly popular and is well suited to the wide range of conditions found in the Scarcies region. Four Native Administrations in the area introduced their own seed scheme and together handled over a thousand bushels of seed—a very good beginning.

30. The existing five Farmers' Societies continued to operate. Rice traded by these societies shows a decrease in the case of the three newer societies and a slight increase in the case of the two older societies.

31. The breeding of pigs was added to the activities of Rokupr Station.

SEMBEHUN AGRICULTURAL STATION.

32. No statistical investigation was attempted in the rice experiment blocks as the officer-in-charge is too actively engaged on extension work in his area to permit of sufficient attention being given to this form of experimentation. Some of the blocks were manured with town compost with marked beneficial effects.

33. Piricularia was again troublesome in the rice nurseries, Sughandi, Ngasein, Ro. 1. and Kavunginpoothala being attacked in order of decreasing severity. Trials were continued with measures for the control of Piricularia. These included trials with side and top leaf shade, and the sowing of germinated seed in the inland swamp and on raft nurseries. The last two gave a good measure of control and are to be further tested. It may prove necessary to adopt wetland nurseries in order to control Piricularia.

34. In the upland area of the farm, yams and two cent cassava yielded satisfactorily. A mixed pawpaw and pineapple block was planted. The young oil-palm plantation has started to bear and a block of citrus was planted. Economic plants and ornamentals were distributed from the nurseries.

35. District work in the area was hindered through lack of suitable river transport. The chief activities were the distribution of seed rice and yams. Over 1,400 bushels were distributed under Departmental and Native Administrations seed schemes. Some 4,000 lb. of improved yam varieties was distributed for planting.

36. 441 farmers received monetary assistance amounting to £1,700 in the form of loans for the purpose of clearing mangrove. Good crops of rice are now being produced on the earlier cleared lands. Swamp rice cultivation shows a substantial increase throughout this area.

37. Agricultural development through Native Administrations has made progress. Five Native Administrations are running their own seed schemes; two are jointly running a pure seed farm and seed stores were built by three Native Administrations.

Kenema Agricultural Station.

38. Considerable progress was made towards ensuring proper water control in the farm. Rice variety and cultivation trials were attempted but were not altogether successful on account of inefficient water control measures which are now being improved. In the upland area of the farm, yams, cassava, pigeon peas, coco-yams and maize were grown to provide planting material for distribution and for feeding livestock.

39. A start was made here with livestock which includes cattle, sheep, pigs and poultry. A Berkshire boar and six Nigerian sows formed the basis of the pig herd.

40. District work was concerned principally with efforts to increase production of rice. Money provided by the Protectorate Mining Benefits Fund was again used for the purpose of increasing food crops other than rice. Considerable quantities of yams, pigeon peas, cow peas, beans, sweet potatoes and maize, have been widely distributed for seed throughout the Kenema Division during the past two or three years.

41. The cocoa crop which in a normal year amounts to about 800 tons, was not wanted for export owing to the lack of shipping facilities. Arrangements were accordingly made to purchase the crop on behalf of the Cocoa Control Board in the United Kingdom and destroy it in the area.

42. Over 800 bushels of seed rice were distributed under the Departmental scheme and a further 350 bushels through Native Administrations schemes. Native Administrations are showing an increased interest in developing agriculture and a number of farms have been established.

43. The scheme inaugurated in 1941 for increasing food crops in the three Kissi Chiefdoms, where undernourishment has been rife, was most successful. A very great improvement in the living conditions of the people and of their food supply is already noticeable after two years of effort.

Makeni Agricultural Station.

44. This farm has been in existence for two years and the whole area has now been cleared. Much of the swamp land was levelled and rice plots were impounded. This work will be completed in 1943. The course of the stream, originally somewhat torfuous, has been to some extent re-aligned and a definite water channel constructed throughout the length of the farm. Five varieties of rice were grown in the swamp plots during the year, yielding at the rate of twenty-one bushels of paddy per acre, a figure which it is confidently hoped to improve in later years. Satisfactory crops of yams, cassava, Kono ground-nuts and sweet potatoes were raised for distribution. Four varieties of bananas were grown on the land bordering the swamp. The livestock at the end of the year included three oxen, seven sheep and nine goats. A useful quantity of planting material of fruit trees and other economic species was distributed free or on repayment. These included robusta coffee, coconuts, Angola and Deli oil-palms, pineapples, bananas, oranges and bread fruit.

45. The Department's and Native Administrations' seed rice schemes' funds are in a healthy condition. Seed rice stocks in circulation were doubled during the year. Including those farmers to whom seed rice has been distributed from Native Administration funds a total of 1,276 farmers were assisted in fifty-two chiefdoms. A similar revolving scheme for yams is in operation. Considerable attention was directed to increasing the area of inland swamps under cultivation. Two sub-stations were maintained at Batkanu and Lunsar. The latter came under the control of the Agricultural Officer, Colony, in June.

Newton Agricultural Station.

46. Permanent crops under cultivation at this station include cinnamon, cashew, mangoes and pawpaw. Small plots of "Tea bush" (*Ocimum viride*) and *Tephrosia vogelii* were raised for investigations by the Medical Department. Seven cover crops were grown of which Bengal bean, *Calopogonium mucunoides*, and *Centrosema* sp. did best.

47. Agricultural sub-stations in the area are at Lunsar, Port Loko and Maswari. The last station is situated in the saline tidal lands, and here swamp land has been impoldered for the cultivation of rice. A successful crop of rice was grown, the highest yield reaching thirty-seven bushels of paddy to the acre. Cultivation trials are in progress. This sub-station has clearly shown that saline swamps can be impoldered and converted into useful rice swamps. The other two sub-stations distributed quantities of planting material.

48. A seed farm was opened at Lunsar by the Native Administration in land adjacent to the agricultural sub-station. A total of over 1,700 bushels of seed rice was distributed under Departmental and Native Administrations seed schemes.

Teko Stock Farm.

49. The cattle thrived well during the year especially the young animals born on the farm. The increase of the weight of the calves at birth compared with that when the station was first opened is most marked. Twenty-six calves were born and seventeen cows and heifers were acquired from native herds. The surplus milk found a ready sale in Makeni.

50. It has now been found possible to divide the cattle of Sierra Leone into four fairly distinctive types:—

(*a*) Light fawn
(*b*) Light red
(*c*) Red with black heads
(*d*) Black.

51. These are given in descending order with regard to size; the light fawns are regarded with the most favour by the local herd owners (chiefly Fulahs). It has therefore been decided to concentrate on the light fawns and reds and a good basis of young stock is being built up at Teko. Good specimens from local herds are purchased and added to the farm from time to time. This however is difficult since owners do not wish to sell their good cows even at high prices.

52. There were thirty-seven head of sheep at the end of the year, twenty-five lambs having been born. The sheep were dipped at regular intervals in order to try to control anolyomma ticks. Eight sheep died of heart water. Foot-rot was the other chief source of trouble but was readily controlled by copper sulphate footbath.

53. There are now fourteen goats of local origin. They seem to suffer more than the sheep from the effects of the wet weather. They quickly recover condition, however, at the end of the rains. They suffered a good deal from foot rot, and one goat died of heart water.

54. *Pigs.*—A start was made with the keeping of pigs in June when some Berkshire-native crosses were obtained from Njala and Newton. Eight Nigerian sows, four Gold Coast sows and one Gold Coast boar were later added to the herd. These were supplied by the Army with a view to assisting in the production of pork. The Gold Coast animals were of poor type and in miserable condition when they arrived. Several deaths occurred and in October two of the imported sows died of Trypanosomiasis. In December, three more of the sows died of the same disease and about the middle of that month the young pigs began to be affected. It was found necessary to destroy most of the animals and by the end of the year it was becoming increasingly evident that Teko was not a suitable centre for pig breeding and steps were taken therefore to dispose of the remaining animals.

55. Poultry rearing is carried out only on a modest scale at Teko on account of the prevalence of fowl diseases in the locality. Sufficient birds are kept at each of the cattle " Warris " to control

as much as possible the breeding of flies. This had satisfactory results. Breeding cockerels were supplied to farmers as well as a quantity of hatching eggs. Spirochaetosis was the cause of the number of deaths among the fowls.

56. An Agricultural Instructor was sent to the Gambia in October to gain experience in veterinary work under the Chief Veterinary Officer.

Research.

57. The Plant Pathologist continued to be employed on special duty not connected with the work of the Department until he went on leave in October. His assistant made some observations on False Smut of rice (*Ustilaginoidea virens*) in the Bo and Kenema Divisions and undertook the routine work of the office. The Entomologist carried out the duties of an Agricultural Officer in the Kenema Division on his return from leave in February until towards the end of the year when he was employed in the Freetown office of the Department. In his absence, the Entomological Assistant continued to carry out the routine duties.

58. Mrs. F. J. Jordan, Entomologist, appointed under a grant from the Colonial Development and Welfare Fund to carry out a special investigation of citrus fruit piercing moths, arrived in the Colony during October and was attached for administrative purposes to the Department, her headquarters being at Njala.

Rice Milling.

59. The Government Rice Mill had a busy and successful year. A very considerable strain was placed on the mill and the milling staff by the heavy calls of all sections of the community for rice. Altogether 158,644 bushels of paddy and native cleaned rice were received in the mill. Of this, 89,215 bushels were cleaned. Owing to the urgent calls for rice for the Services and for the civil population much of the native cleaned rice had to be sold without recleaning. In order to cope with the heavy demands for rice, the mill worked two shifts daily of eight hours each for the greater part of the year. Total sales at the Rice Mill amounted to £124,688. A profit of £2,920 was realised on the year's work. The shrinkage over the rice handled was 1·3 per cent a low and very satisfactory figure.

60. Four Planter's No. 1 rice mills were obtained towards the end of the year and arrangements had been made to erect these in suitable buildings at Rokupr, Kenema, Bo and Sembehun. The mills will reduce the strain on the Cline Town mill to some extent and will go some way to meet demands of the Services and essential works up-country.

Produce Inspection.

61. The Inspector of Plants and Produce returned from secondment to the Army in April. A new post of First Grade Sub-Inspector was created and filled by the promotion of one Second Grade Sub-Inspector. Produce exports were again considerably below the figures of pre-war years. The work of inspection was thus lighter than in normal times and some of the Sub-Inspectors were employed for a considerable part of their

time in connection with the buying, storing and railing of rice. In addition to these duties the Sub-Inspectors acted as Inspectors under the Defence (Prices of Goods) Order. The number of produce licences issued in Freetown during the year was 354, almost double the figure of the previous year.

Agricultural Education.

62. A separate report has been issued on the work of the Njala Training College. Satisfactory progress was maintained in spite of the shortage of staff and difficulties in obtaining equipment.

63. Since the commencement of the scheme in April, 1939, seventy-one students have received instruction; and by the end of 1942 the College has trained eighteen Grade I Agricultural Instructors, four Grade II Agricultural Instructors and twelve Elementary Teachers. Seven Agricultural Instructors and three Forest Guards have attended refresher courses; one Instructor is being trained for the Gambia Agricultural Department.

64. An Administration block (containing four offices, a lecture-room and store), two dormitories and a tool-store have been built, and the old offices have been converted into a biological laboratory. The College farm has been extended; two new plantations of permanent crops have been established and another strip cleared for annual crops. There has been further development of the nursery and arboretum.

Legislation.

65. The Water Control Ordinance, No. 19 of 1942, was passed. The object is to provide for the conservation and better utilisation of the natural water supplies in Sierra Leone.

Acknowledgments.

66. Finally, I want to express my gratitude to all members of the Field Staff who have worked so strenuously throughout the year. No one who has not trudged through swamps, knee-deep in water, under the torrential rains, day after day, can fully appreciate their service. One Mr. G. M. Roddan, has been invalided never to return to Sierra Leone; others have suffered in less degree and many have had extended leave through ill health. All have ungrudgingly contributed their best efforts to the production of food in Sierra Leone.

67. In the other branches of the Department, the Staff have worked long hours uncomplainingly and at Njala have risen superior to all obstacles, and in spite of overtime have organised and trained a very competent band—the only departmental band in the Colony. I am very grateful to all the clerical and mill staff for their whole-hearted and unstinted efforts.

I have the honour to be,
Sir,
Your obedient servant,

F. J. MARTIN,
Director of Agriculture.

Department of Agriculture,
Freetown,
December,, 1943.

APPENDIX

IRRIGATION AND DRAINAGE BRANCH, ANNUAL REPORT, 1942

BY

C. J. Rae, Irrigation and Drainage Engineer.

As stated in the conclusion of the Annual Report for 1941 it was hoped that the year 1942 would be one of concrete achievement . Owing to circumstances arising out of the abnormal times, the work done during the year has not progressed quite so far as was originally, and perhaps rather too optimistically, hoped. But good progress has been made in many directions, not least in those which provide that solid foundation on which all future progress must depend, and for reasons which will apear in this report, future progress should be on a rapidly increasing scale.

2. *Staff.* During the year the staff has been greatly augmented. Two Assistant Irrigation and Drainage Engineers were engaged early in the year, Mr. Garvie arriving from the United Kingdom on the 1st March, 1942, and Mr. Spencer-knott being locally appointed and taking up his duties on the 1st April, 1942. A third Assistant Irrigation and Drainage Engineer, Mr. Inglis, was obtained from Malaya, and he arrived and took up his duties in May. Whilst the Irrigation and Drainage Engineer was on leave in England he selected, in consultation with the Crown Agents, two Foremen of Works, Messrs. Nelson and Proctor, and these two officers arrived in November. Additional clerks, storekeepers and drawing office and survey staff were also recruited. Another ex-Malayan Irrigation and Drainage Engineer Mr. Akers, has been appointed Senior Assistant Irrigation and Drainage Engineer and is expected early in the New Year. Early in the year the Irrigation and Drainage Engineer was detached from his ordinary duties for about six weeks to assist in the organisation of the A.R.P. Services in Freetown. This caused a temporary slowing down of the Branch's activities. On 1st June the Irrigation and Drainage Engineer proceeded to Gambia, at the request of that Government, to make a quick preliminary survey of the prospects of land reclamation and drainage work, etc. in that Colony. This was done, and a lengthy report submitted to the Government of the Gambia and the Irrigation and Drainage Engineer then proceeded on leave to the United Kingdom. Whilst on leave a considerable amount of work was done in England, including extensive enquiries regarding machinery and other equipments and various conferences with Colonial Office officials regarding the work and future development of irrigation and drainage in this Colony. During the Irrigation and Drain age Engineer's absence Mr. R. Inglis acted as Irrigation and Drainage Engineer.

3. *Plant.*—All the tools and plant, survey and drawing office equipment ordered during the year 1941 arrived safely during the year, with the sole exception of the water guages ordered from India. These were erroneously consigned to Durban by the Indian authorities and have not been received here yet. The Launch ordered in 1941 arrived in April, 1942, and has proved invaluable. A second launch is on order and expected early in 1943. Until this second launch arrives operations remain some what seriously handicapped by shortage of transport facilities.

An outboard motor was obtained and fitted to a Bullom boat to relieve the transport situation and has proved fairly successful. The self-recording tidal guages arrived during the year and are being installed during the present dry season. The first is already in operation at Rokupr and it is already quite apparent that these will give an invaluable record of water movements.

4. *Surveys.*—During the year survey work continued in the Scarcies area, also at various selected sites in the Uplands. In the Scarcies a large swamp at Royel, near Rokupr was completed, also an area approximating 4,000 acres near Mambolo. At the end of the year parties were at work on two smaller swamps near Katonga on the Little Scarcies. Plans and estimates for Royel and the Mambolo swamps were prepared and these projects are now ready for execution. In the Upland areas survey work was done at Bonthe, Moyamba, Rotifunk, Port Loko, Kenema and Makeni. Further survey work was done and tidal observations made a site of the proposed weir for the Waanji flood diversion project.

5. *Works—Scarcies Area Construction.*—Work was started as soon as Mr. Garvie arrived on the Luti drainage project, and fair progress made. Due to a serious shortage of labour in the two months preceding the rains, progress was slow, and it is only now that the rice harvest is coming to an end, that anything like an adequate supply of labour is available.

6. Work was started at the end of the year on the Rosino project as well. The arrival of the two Foremen has improved matters immensely, as the closer European supervision now available has stepped up the outturn of the labour considerably. Working under the advice of the Branch, the Agricultural Officers, Makeni and Kenema have carried out minor drainage work in the experimental farms at these two places and these works have proved very successful. The Tasso Island drainage work, completed at the end of 1941 developed certain defects during the year and improvements had to be made as a result of the experience gained in this work, the first attempt at properly organised drainage for agricultural purposes in this country. A second sluice at a lower level was constructed during the year, and this has completely removed the trouble and resulted in the lake being completely drained and made ready for cultivation.

7. *Finance.*—Owing to the difficulty in obtaining either an adequate supply of labour, or a satisfactory outturn from the labour available, it was not possible to utilise fully the funds made available. A total expenditure of £11,483 was incurred on works, as against an estimated provision of £24,150. During the year a comprehensive scheme for future development was worked out and application made to the Colonial Development and Welfare Fund for a grant or loan of approximately £303,500—spread over five years. Permission was granted to the Irrigation and Drainage Engineer whilst at home to place orders for heavy plant and equipment necessary to implement these proposals.

8. *Future Activities.*—Experience has shown that it is impossible to carry out heavy embankment in the waterlogged soil of the Scarcies area by manual labour except at extremely heavy cost in money and time. The rate of earth work for flood embankments at Luti for example has gone up as high as 5*s.* per cubic yard

excavated at certain places, and at many points work by manual labour is impossible except at the very end of the dry season, and then only at neap tides owing to the amount of standing water. This renders the carrying out of the projects now ready a prohibitively costly affair, and it is therefore essential that machine digging be substituted for manual work at the earliest possible moment. As a result of this, amongst the plant ordered recently, *vide* paragraph 7 above, are included three ½ yard N.C.H. 150 Diesel Excavators, fitted as Draglines, Skimmers and Back Trenchers. With these machines, which can work twenty-four hours per day in three eight-hour shifts, three crews per machine (three men per crew) will be able to do the work of 1,200 to 1,400 men per day at a cost pessimistically estimated at ninepence per cubic yard. As the maximum labour force ever obtainable up to date at Luti is in the neighbourhood of 400 to 500 it will be apparent what a gain not only in cost, but in time, will be achieved by the use of these machines. Incidentally it is hoped that these excavators will be able to continue work throughout the rainy season, when all manual labour is brought to a stop.

9. In conclusion, I would raise the question of the imperative necessity of recruiting a trained African technical staff. Such men are at present practically unobtainable. The few that are possessed of any technical training at all, being all absorbed by the various Service works still in progress; frequently at very high wages. A start has been made at recruiting intelligent youngsters, with reasonable educational qualifications, and training them as surveyors, foremen, etc. This is found to be a slow process, and very rapid results cannot be expected, but progress is being made. These young men are being impressed from the beginning that they are having an opportunity of learning a job, which quite apart from its future personal prospects, is one which fits them for work whose benefits to their own country and the community at large, can hardly be overestimated. It is hoped, that the changed war situation in so far as it affects Sierra Leone, will, in the near future, result in a diminution of Service works, and a consequent improvement in the recruitment position.